

Semester	5
Course	MAJOR
Paper Code	C3CS230531T
Paper Title	DATA COMMUNICATIONS AND COMPUTER NETWORKS
No. of Credits	4
Theory / Practical / Composite	THEORY
Minimum No. of preparatory hours per week a student has to devote	5
Number of Modules	ONE
Syllabus	<p>GROUP A:</p> <ol style="list-style-type: none"> 1. Data Communications: Analog & Digital Signals, Periodic and Non Periodic Signals, Time and frequency Domain Analysis. Transmission Impairments: Nyquist and Shanon's Theorem. 2. Introduction to Computer Networks Network definition; network topologies; network classifications; network protocol; layered network architecture; overview of OSI reference model; overview of TCP/IP protocol suite. 3. Physical Layer Functionalities Transmission Media. Multiplexing: FDM, TDM and Applications. Switching Techniques: Circuit, Message and Packet Switching. Encoding Techniques. 4. Data Link Layer Functions and Protocol Error detection and error correction techniques; data-link control- framing and flow control; error recovery protocols: Stop and wait ARQ, Go-back-n ARQ, Selective repeat ARQ. <p>GROUP B:</p> <ol style="list-style-type: none"> 5. Multiple Access Protocol and Networks Carrier and non-carrier sense protocols; IEEE 802.X – Introduction, architecture, protocol and management of Ethernet and token ring. 6. Networks Layer Functions and Protocols; IP addressing Concepts. 7. Transport Layer Process-to-process delivery, Transport layer protocols (UDP and TCP), Multiplexing, Connection management, Flow control and retransmission, Window management, TCP Congestion control, Quality of service. 8. Application Layer: Domain Name System, World Wide Web and Hyper Text Transfer Protocol, Electronic mail, File Transfer Protocol, Remote login, Network management, Data compression, Cryptography – basic concepts

	9. Overview of Mobile Communications, Introduction to Cloud networking.	
Learning Outcomes	1. Describe the general principles of data communication. 2. Describe how computer networks are organized with the concept of layered approach. 3. Describe how signals are used to transfer data between nodes. 4. Describe protocols for Implement of a simple LAN 5. Analyze the functions of Data Link layer. 6. Describe the various forms of addressing techniques.	
Reading/Reference Lists	1. B. A. Forouzan: Data Communications and Networking, Fifth edition, THM , 2012. 2. A. S. Tanenbaum: Computer Networks, Fifth edition, PHI , 2010.	
Evaluation	Theory CIA: 25 Attendance: 5 Semester Exam: 70	
Paper Structure	GROUP A: Answer 5 out of 7 of 7 marks each GROUP B: Answer 5 out of 7 of 7 marks each	